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EXAMINER

WANG, QUAN ZHEN

ART UNIT	PAPER NUMBER
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2613

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/713,449

Applicant(s)

AGAZZI, OSCAR E.

Examiner

Quan-Zhen Wang

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-29,31-33,35,36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) 28,32 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26,27,29,31,35,36 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 26, 27, 31, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Chow (U.S. Patent US 6,249,543 B1).

Regarding claims 26 and 27, Rowan discloses a method (figs. 1-6) of transmitting a first parallel data stream (fig. 1, data channels 110A-N) over a fiber optic channel (fig. 1, fiber 104), comprising: converting the first parallel data stream (fig. 3, data channels 110A-N) into a plurality of second parallel data streams (fig. 3, data streams output from encoder 302A-M); parallel process converting the plurality of second parallel data streams into a plurality of analog signals (fig. 3, data stream 210A-K); combining the plurality of analog signals into a single analog signal (figs. 2 and 5, data 212); converting the single analog into an optical signal (fig. 2, optical modulator 206); and coupling the optical signal to the fiber optic channel (fig. 2, fiber 104).

Rowan differs from the claimed invention in that Rowan does not specifically disclose that the signal process comprises encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a

plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters. However, these steps are well known in the art in processing data to be transmitted in a multi-carrier communication system. For example, Chow discloses to process data to be transmitted including the steps of encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters (figs. 1 and 3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing steps as disclosed by Chow in the system of Rowan in order to effectively convert data in frequency domain into time domain signals which can be transmitted over a communication channel.

Regarding claim 31, Rowan discloses a method of converting an optical signal received from a fiber optic channel into a parallel data stream (figs. 7-10), comprising: converting the optical signal received from the fiber optic channel into an analog electrical signal (fig. 7, detector 700 and output data 710); converting the analog electrical signal into a plurality of baseband signals (figs. 7 and 8, signals 712A-K); and converting the plurality of baseband signals into a parallel data stream (figs. 7 and 8, data 120A-N). Rowan differs from the claimed invention in that Rowan does not specifically disclose that the signal process comprises encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the

symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters. However, these steps are well known in the art in processing data to be transmitted in a multi-carrier communication system. For example, Chow discloses to process data to be transmitted including the steps of encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters (figs. 1 and 3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing steps as disclosed by Chow in the system of Rowan in order to effectively convert data in frequency domain into time domain signals which can be transmitted over a communication channel.

Regarding claim 38, Rowan discloses a method (figs. 1-10) of transmitting and receiving a first parallel data stream over a fiber optic channel, comprising: converting the first parallel data stream (fig. 3, data channels 110A-N) into a plurality of second parallel data streams (fig. 3, data streams output from encoder 302A-M); parallel process converting the plurality of second parallel data streams into a plurality of analog signals (fig. 3, data stream 210A-K); combining the plurality of analog signals into a single analog signal (figs. 2 and 5, data 212); converting the single analog signal into an optical signal (fig. 2, optical modulator 206); coupling the optical signal onto the fiber optic channel (fig. 2, fiber 104); converting the optical signal received from the fiber optic

channel into an analog electrical signal (fig. 7, detector 700 and output data 710); parallel process converting the analog electrical signal into a third plurality of parallel digital signals (fig. 9B, data 712A-H); and converting the third plurality of parallel digital signals into a fourth parallel data stream (fig. 10, data 120A-N). Rowan differs from the claimed invention in that Rowan does not specifically disclose that the signal process comprises encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters. However, these steps are well known in the art in processing data to be transmitted in a multi-carrier communication system. For example, Chow discloses to process data to be transmitted including the steps of encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders; converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and converting the transformed values into analog representations in a plurality of digital to analog converters (figs. 1 and 3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing steps as disclosed by Chow in the system of Rowan in order to effectively convert data in frequency domain into time domain signals which can be transmitted over a communication channel.

3. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Muller et al. (U.S. Patent US 6,873,630 B1).

Regarding claim 29, Rowan has been discussed above in regard with claim 26. Rowan differs from the claimed invention in that Rowan does not specifically disclose converting data using XGMII. However, XGMII is a well-known data coupling interface. For example, Muller discloses to use XGMII to couple different layers in a data communication network (fig. 1, 10GMII 102). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a 10GMII, as it is disclosed by Muller, in the system of Rowan to convert the first parallel data stream into a second parallel data stream in order to effectively process data with high data rate.

4. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan et al. (U.S. Patent US 6,407,843 B1) in view of Brede et al. (U.S. Patent Application Publication US 2002/0098797 A1).

Regarding claims 35, and claim 36, as it is understood in view of the above 112 problem, Rowan has been discussed above in regard with claim 31. Rowan differs from the claimed invention in that Rowan does not specifically disclose sampling and holding successive values of the analog electrical signal; providing the held analog value to a plurality of A/D converter. However, in the data processing of a multi-carrier communication system, it is well known in the art to sample and hold successive values

of an analog electrical signal; and provide the held analog value to a plurality of A/D converter. For example, Brede discloses sampling and holding successive values of the analog electrical signal; providing the held analog value to a plurality of A/D converter (figs. 33 and 34, paragraphs 0296 and 0302). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the data processing method of Brede in the system of Rowan in order to generate data points that are suitable to be applied to a FFT utilized in the receiver architecture (paragraph 0296).

Response to Arguments

5. Applicant's arguments filed November 15, 2007 have been fully considered but they are not persuasive.

6. Applicant argues that Chow is not analogous art since "Chow does not involve optical communications" (page 7 of the instant Remarks). Examiner respectfully disagrees. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir.1992). In this case, Chow specifically states, "Improved initialization techniques for initializing data transfer between a pair of transceivers in multicarrier modulation transmission system are disclosed" (abstract). It is obvious that the techniques disclosed by Chow is applicable to a multicarrier modulation transmission

system involving a pair of transceivers, such as the one of Rowan. Furthermore, Chow specifically discloses "The processing and distribution unit 254 is coupled to the central office 252 by a high speed, multiplexed transmission line 256 that may take the form of **a fiber optic line**" (column 7, lines 52-55). Clearly and undoubtedly, Chow's teaching does involve optical communication. In addition, "Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle". See KSR, 137 S. Ct. at 1742, 82 USPQ2d at 1397. In view of the above discussion, the amended claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan in view of Chow. For the same reasons, claims 31 and 28 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Rowan in view of Chow.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

qzw
2/3/2008



SHI K. LI
PRIMARY PATENT EXAMINER